DR. CHARLES A. MANN, of the University of Wisconsin, has been appointed associate professor of chemical engineering at Iowa State College, to succeed Professor George A. Gabriel, who has resigned to undertake industrial work.

AT Yale University Samuel James Record, at present an assistant professor in the Forestry School, has been elected professor of forest products, and Assistant Professor Ralph Chipman Hawley has been promoted to a full professorship of forestry.

HOWARD LILIENTHAL, M.D., (Harvard, '87), has been appointed professor of clinical surgery in the Cornell University Medical School.

MR. E. D. MERRILL, botanist in the Bureau of Science, Manila, and for the last four years associate professor of botany in the University of the Philippines and head of the department, has been promoted to the full professorship. His services will be divided between the university and the Bureau of Science as in the past.

THE resignation of Dr. E. A. Letts from the chair of chemistry in the Queen's University, Belfast, is announced.

## DISCUSSION AND CORRESPONDENCE

### EPICENE PROFILES IN DESERT LANDS

IN the genetic analysis of the land forms characteristic of arid regions there seems to be an inexplicable proneness to derive all relief effects not through means of the mastering erosive powers peculiarly dependent upon aridity but through the operation of the same geologic processes which produce the landscape features under conditions of normal humid climate. This far too general tendency to regard all geographic agencies as differing merely in degree and not in kind inevitably leads to erroneous conclusions concerning the origin of many relief details. Although in the instance of desert lands there are not only more but different erosional agencies to be taken into account there is actually less complexity involved than in moist lands. On the other hand while there is still the simultaneous working of several distinct processes a little-known one becomes dominant and so thoroughly ascendant as to all but completely obscure the operations of the others. To this aspect of the desert problems little attention has been heretofore devoted.

Although this exceptional simplicity of landscape derivation obtains in typically desert tracts it appears to be not nearly so prevalent either on the borders of the desert or in the penumbral semi-arid belts. In the last mentioned situation there is a notable mingling of relief effects produced by the action of several distinct erosional processes. Here recorded observation chances to be most extensive and generalization most rampant. Here, too, because of the fact that the examination of the features is attended by strong bias of moist climate experience misinterpretation of true desert characters is rife.

By inference, at least, use of the title "Epicene Profiles" applied to arid tracts, presupposes the recognition of other relief effects. The orogenic profile which has been so long inseparably associated with desert topography is at once relegated to the back-ground. By its elimination a diametrically opposed proposition is substituted for that most brilliant of geological concepts—the fault-block hypothesis of basin range structure whereby the mountain prisms are tilting and floating as do ice-cakes in a river at time of spring break-up.

The early impression that desert ranges, as those of the Great Basin for instance, are buried mountains still strongly persists. But there are many phenomena in such regions that water-action does not begin to explain. The rock-floor which many intermont basins display is one of them. The smooth plains surface of enisled landscapes at once excites greatest interest. To find such tracts areas of profound degradation instead of extensive aggradation, as one is led to expect after accepting the water-action hypothesis, is truly surprising. Whether desert tracts of this description owe their facial expression mainly to pre-arid corrasion by streams all traces of which have long since vanished, whether the sloping interment plains are the result of sheet-flood erosion, or, as is still more lately proposed, the rock-floor of desert piedmonts is due to

former stream-planation and burial by mountain wash which by stream-action at a later stage is again removed the fact remains that the finest and most extensive rock-floors are found in situations where no water-action could possibly have occurred. For all these cases other suggestions of genesis is, of course, necessary.

The local exhuming of the rock-floors of arid piedmonts by the removal of its wash mantle does not really demand any elaborate inductive reasoning in order to reach an adequate explanation of the phenomenon. It is one of the commonest features of the desert. The effect is sometimes repeated over the same district several times in a year. It has been known to take place over night—by wind action. In the semi-arid belt, or on the margin of lofty mountains, as the Sierra Nevada in California for example, the local removal of the soil layer might be at first glance ascribed to stream-action; but broader observation extending to typical desert regions, where only low hills prevail, demonstrates at once that the stream-planing hypothesis must be entirely abandoned. The extension of moist-climate principles of erosion to arid lands is done with constantly growing difficulty.

In support of the idea of the eolic derivation of many rock-floored piedmont plains there are ample published observations. The late W J McGee's descriptions of the phenomenon as displayed in Sonoran deserts are pertinent. A single experience of my own when encamped on the Jornada del Muerto at the northern end of the Mexican tableland is by no means an isolated instance. There at the foot of a mountain apparently "buried up to its shoulders in its own débris" a strong gale which suddenly arose completely swept away in a half hour's time the supposedly deep soil and laid bare the smoothest and hardest of rock-floors worn out on the upturned edges of most resistant strata. Since the situation was at the mouth of a canyon and upon the back of what appeared to be a broad alluvial fan, a day's later visit might have ascribed the phenomenon to stream work.

Charles Keyes

## NOTES CONCERNING THE FOOD SUPPLY OF SOME WATER BUGS

In the literature dealing with aquatic Hemiptera, we are informed that without exception they are predatory: those which dwell upon the surface capturing such flies and other terrestrial insects as may chance to fall into the water, and those that pass their lives beneath the surface preying upon aquatic insects and similar organisms.

In the light of recent observations along this line, the above information seems inadequate. Corixids for instance are largely herbivorous.

The bulk of the food of our common water-strider, *Gerris marginatus,* consists at certain times of the year almost exclusively of the Jassids and related forms that feed on *Juncus* and other plants bordering on and growing in the shallow waters.

Our common species of *Rheumatobates,* while it does not disdain to feed upon small insects that fall into the water, obtains its main supply from the little crustacean forms such as Ostracods and Daphnians, which swarm the quiet pools. These it captures as they rest at the surface, scooping them out and holding them aloft upon the upturned tip of the beak, while the body of the little victim is being depleted of its nutritive material. A species of the genus *Microvelia* common in Kansas has access to the same source for its food supply and similar habits of consuming it. *Mesovelia mulsanti,* our little green Gerrid, has been observed exploring the sides of stems of *Juncus* and *Typha* that lay just beneath the surface for Ostracods, which they occasionally obtained, while the well-known marsh treader, *Hydrometra martini,* stalks about over the floating vegetation in search of whatever small beings chance to come to the surface film. Its victims have been observed to consist of mosquito wigglers, mosquito pupæ, emerging midges, nymphal corixids, and Ostracods, as well as small terrestrial insects floundering on the water.

Among the bugs that live in the water, none are more common than the back-swimmers, or Notonectids, and the water boatmen, or